BY ORDER OF THE COMMANDER
AEROSPACE MAINTENANCE AND
REGENERATION CENTER

AMARC INSTRUCTION 21-124

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Maintenance

HANDLING AND TRANSPORTATION OF TEST MEASUREMENT DIAGNOSTIC EQUIPMENT (TMDE

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This instruction implements Air Force Policy Directive (AFPD) 21-1, *Managing Aerospace Equipment Maintenance*. It incorporates instructions for TMDE management in Technical Order (TO) 33K-1-100, *TMDE Calibration Notes, Maintenance Data Collection Codes, Calibration Maintenance Summaries, Transportable Field Calibration Unit Configurations and Automatic Calibration System Supportable Equipment* and TO 00-20-14, *Air Force Metrology and Calibration Program* (TOs on compact disks [CD]). It defines the AMARC policies and procedures for the transport, delivery and receipt of TMDE and applies to the Logistics (LG), Aircraft Management (LA), and Plans and Programs (XP) Directorates, Safety Office (CC-SE) and all Resource Control Centers (RCC) that have custody of this type equipment.

SUMMARY OF CHANGES. Updates publication format, style and office symbols. Changed paragraphs are indicated with an * (asterisk).

1. DEFINITIONS.

1.1. Calibration Technical Order (CTO) - A procedure specifically developed to ensure traceability and accuracy of an individual TMDE item or system. This technical source is quoted on certification documents by the TMDE technician.

1.2. Maintenance Technical Order (MTO) - Inclusive technical data covering operation, inspection, repair, calibration, and illustrated parts breakdown (IPB) of a TMDE item. Used for calibration when the CTO is not available, or unless otherwise directed by regulation or TO.

1.3. TMDE Flight - Maintenance flight responsible for management of the Air Force calibration program at this installation. Located at 355th Component Repair Squadron, Test Measurement and Diagnostic Equipment Flight (355CRS/CRT).

1.4. Precision Measurement Equipment Laboratory (PMEL) - The physical laboratory operation of the TMDE flight.

1.5. Category (CAT) 2 TMDE - Items that are inspected, calibrated and repaired in AMARC by Specialist Support Division, Avionics Branch (LASA).

1.6. CAT 3 TMDE - Items that must be transported to the 355CRS/CRT PMEL laboratory for inspection, calibration and repair.

1.7. Preventative Maintenance Inspection (PMI) - Performed by the owning RCC. PMI may also include RCC operational verification or user maintenance.

1.8. RADIAC - Radiation Detection Equipment.

1.9. TMDE. Equipment used to troubleshoot, perform functional test and/or calibration on weapon systems, support/training aircraft subsystems, components, or the equipment used in support of these systems while on the ground. It includes aircraft/engine test cells, shop test stands, NDI equipment, electrical test sets, precision measurement equipment (PME), weapon systems or aircraft mockups, generator load banks, and associated electrical/electronic supporting equipment, hydraulic test stands stationary, cabin leakage testers, etc. (TO00-20-1, *Aerospace Equipment Maintenance General Policies and Procedures)*

2. RESPONSIBILITIES AND PROCEDURES.

2.1. Branch chiefs will assign a primary and an alternate TMDE monitor from each RCC. Update letters of appointment annually or as changes occur, and send to LASA who will forward a copy to the 355CRS/CRT.

2.2. General procedures for CAT 2 and CAT 3 TMDE.

2.2.1. Prior to procurement of any TMDE equipment, the RCC equipment custodian will coordinate the TMDE requisition through LASA and the TMDE Laboratory.

2.2.2. The RCC TMDE monitor will:

2.2.2.1. On receipt of new TMDE and prior to initial use, coordinate with LASA to ensure calibration needs comply with the applicable maintenance technical data. See TOs 00-20-7, *Inspection System Documentation and Status Reporting for Support and Training Equipment,* 00-20-14 and 33K-1-100; and Naval Air (NAVAIR) 17-35-MTL-1, *Metrology Requirements List (METRL).* The RCC TMDE monitor, LASA TMDE monitor, and the 355CRS/CRT PMEL laboratory will jointly determine, IAW TO 00-20-14, those TMDE items that must be sent off base for commercial calibration. Coordinate with 355 Contracting Squadron, Services Flight (355thCONS/GCV) to determine if annual or less frequent calibration may be done on the RCC TMDE monitors' International Merchant Purchase Authorization Card (IMPAC) or

2.2.2.2.2. For equipment with known failures between required inspections by LASA or the TMDE Laboratory.

2.2.2.2.3. Equipment that requires periodic servicing such as oil changes, air/nitrogen, etc.

2.2.2.3. If TMDE (Navy or Army items) is not listed in the applicable TO, request a calibration determination by submitting an AFTO Form 45, **Request for Calibration Responsibility Determination**, to LASA. LASA will forward the Form 45 to 355CRS/CRT. The RCC may be required to submit applicable equipment TOs.

2.2.2.4. Ensure that newly arrived items are scheduled for CAT 2 or CAT 3 calibration or inspection within 30 days after arrival.

2.2.2.5. Determine the criticality of measuring devices that are not listed for calibration in TOs by considering how the device is used, i.e., is it an accessory to a measuring device. The most definitive method has to be established by the owner and user; with the assistance of LASA; for example, a primary gauge used to service a system to a specific pressure and within a particular tolerance, would be critical and require calibration.

2.2.2.6. Before sending TMDE to LASA, ensure TMDE meets the condition listed in TOs 00-20-14, Section III and in TO 33-1-27, *Logistics Support of TMDE in FSC.* Also, perform the following as a minimum:

2.2.2.6.1. Brush off dust and dirt and clean any oil and grease from the item.

2.2.2.6.2. Place protective plastic caps on any exposed connectors and install plugs or caps to protect threads.

2.2.2.6.3. Secure all loose cabling to prevent damage. **NOTE.** DO NOT use pressure sensitive tape on TMDE.

2.2.2.6.4. Clean all gauges used on oxygen and oil-free nitrogen systems and place in individual plastic bags IAW TO 37C11-1-1 and annotate this compliance on AFTO Form 350, **Reparable Item Processing Tag.** (See attachment 1, Instructions for Completing AFTO Form 350.)

2.2.2.6.5. If the TMDE items have batteries, inspect the batteries for corrosion and ensure they are serviceable.

2.2.2.6.6. CAT 3 pressure gauges - drain oil or hydraulic fluid from bourdon element.

2.2.2.6.7. All gauges will be bagged (plastic) and connectors capped.

2.2.2.6.8. Plug-in type electronic TMDE must be bagged (plastic) and connectors capped.

2.2.2.6.9. TMDE having ancillary equipment such as probes, shunts, plug-ins, etc. will

2.2.3.3. Sign and issue Part II of the AFTO Form 350 to the RCC as receipt for the equipment.

2.3. Scheduled maintenance.

2.3.1. IAW TO 00-20-14 the 355 CRS/CRT will provide the following computer products to the RCC, showing the TMDE scheduled maintenance information:

2.3.1.1. TMDE Master Identification (ID) listing:

2.3.1.1.1. IAW Precision Measurement Equipment Laboratory (PMEL) Automated Management Subsystem (PAMS), PAMS Implementation Conversion will assign and control ID numbers for all equipment processed through the base 355CRS/CRT.

2.3.1.1.2. All changes to the TMDE Master ID list will be submitted to LASA who will submit to TMDE scheduling. This is necessary to give the scheduling personnel control over all changes, additions, and deletions against the TMDE Master ID listing.

2.3.1.1.3. TMDE scheduling will review all PAMS correction sheets for validity and then enter into PAMS.

2.3.1.1.4. TMDE scheduling controls and prints all TMDE CAT 3 machine products.

2.3.1.2. Monthly Equipment 90-day Forecast Schedule:

2.3.1.2.1. The monthly schedule will be available on the first duty day following the 22nd of each month, and will be forwarded to the TMDE monitor through LASA.

2.3.1.2.2. LASA will ensure the required actions are taken by the RCC upon receipt of the monthly schedule, e.g., accuracy of ID, part, serial numbers, national stock number (NSN), due dates, etc.

2.3.1.3. RCC Master ID listing:

2.3.1.3.1. The RCC Master ID listing will be available the first duty day following the 6th of the month and will be forwarded to the RCC TMDE monitors through LASA.

2.3.1.3.2. The RCC TMDE monitors will take the following actions upon receipt of the Master ID listing:

2.3.1.3.2.1. Verify all information on the listing.

2.3.1.3.2.2. Make all corrections in red ink.

2.3.1.3.2.3. Sign the listing and return a copy to LASA to arrive no later than the 20th of the month.

2.3.2. The RCC will:

and all the information as shown in attachment l. Hand-carry the AFTO Form 350 to LASA, building 7349.

2.3.2.4. LASA will pick up TMDE items due inspection as follows:

2.3.2.4.1. No later than 3 workdays before the scheduled due date.

2.3.2.4.2. On the Friday prior to the inspection due date, if the inspection due date falls on a weekend.

2.3.2.4.3. Five days prior to inspection due date, if inspection due date falls on a holiday.

2.3.3. IAW TO 00-20-14 the 355CRS/CRT will send a "Delinquent TMDE Item Inspection" letter to the AMARC Commander for items not received by noon of the third day after inspection due date.

2.3.3.1. TMDE that is overdue calibration must be removed from service by 2400 hours on the date due calibration (DDC).

2.3.3.2. IAW TO 20-14, paragraph 3.4.10, a letter requesting an extension may be submitted by the RCC TMDE monitor describing the TMDE involved, the calibration due date, the reason why the calibration cannot be accomplished, and the estimated date calibration action can be initiated. Send approved letter through LASA to the TMDE Laboratory.

2.3.4. Upon receipt of items from the RCC, LASA will:

2.3.4.1. Protect the TMDE with cushioning material, such as foam rubber, bonded rubberized hair, etc., to prevent damage when transporting the TMDE to the TMDE Laboratory.

2.3.4.2. Coordinate with TMDE Laboratory on inspection progress, part shortages, etc.

2.3.4.3. Pick up the TMDE when notified that the inspection is completed.

2.3.4.4. Deliver the inspected TMDE to the RCC and exchange the hand receipt for the item.

2.3.4.5. Process "delinquent" items to the TMDE Laboratory on a priority basis.

2.4. Initial inspection and unscheduled requirements.

2.4.1. The RCC will fill out an AFTO Form 350, attach it to the TMDE and notify LASA that TMDE is ready for pickup.

2.4.2. LASA will:

2.4.2.1. Process TMDE unscheduled maintenance requirements to the TMDE Laboratory on a priority basis.

2.4.2.2. Coordinate new TMDE with TMDE scheduling prior to delivery to ensure standards

from leaking batteries, attach AFTO Form 244 and keep a record of inspections.

2.5.2. LASA will check all RADIAC batteries for serviceability. The user will provide serviceable replacements, when required.

2.5.3. All RADIAC equipment will be supplied with a Calibration Date Chart such as AFTO Form 249, **TMDE Calibration Data**, or a computer generated equivalent, that shows the final recorded values obtained at all calibration points required on each range of the test instrument.

2.5.4. Maintain an AFTO Form 140, **RADIAC Equipment Maintenance Record,** for each item.

OFFICIAL

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Attachment 1

INSTRUCTIONS FOR COMPLETING AFTO FORM 350

Instructions for Completing AFTO Form 350. RCCs will fill in the following blocks on AFTO Form 350 and attach to each unscheduled TMDE item sent to 355CRS/CRT.

BLOCK	DESCRIPTION
1	Blank
2	Equipment ID Number
3-6	Blank
7	Work Unit Code
8-9	Blank
10	Federal Stock Class
11	Equipment Part Number
12	Equipment Serial Number
13	Blank
14	Discrepancy: Inoperable item - i.e., 'WILL NOT TRANSMIT' or applicable description. New equipment - "INIT CAL" (Initial Calibration). On-site calibration. Complete inventory of accessories.
15	RCC number, person to contact and phone number for ID and return of the item.
16-17	Blank
18	Equipment Part Number
19	National Stock Number (NSN)
20-80	Blank